

REMARKS

The above amendments and these remarks are responsive to the Office Action issued on March 1, 2006. By this response, claim 20 is cancelled without prejudice and claims 21-24 are newly presented. No new matter is added. Claims 1-19 and 21-24 are now active for examination.

The Office Action and the Telephone Interview

The Office Action dated March 1, 2006 rejected claims 1, 2, 4-6, 13-15 and 20 under 35 U.S.C. §102(e) as being anticipated by Mattes et al. (US Publication No. 2004/0153217). Claim 3 was rejected under 35 U.S.C. §103(a) as being unpatentable over Mattes et al. in view of Fujita (US Patent No. 5,485,892). Claims 1-7, 10, 13-15 and 20 were rejected under the obviousness type double patenting over claims 1-5 and 11-15 of Yamamura et al. (US Patent No. 6,882,915), which issued on April 19, 2005. Claims 8, 9, 11, 12 and 16-19 were objected to for depending on a rejected base claim, but would be allowable if they are rewritten into independent form.

The Examiner is thanked for the courtesy for granting a telephone interview on May 16, 2006 to discuss the Office Action and differences between the claims and cited documents. The Examiner agreed that the documents of record do not disclose or suggest features related to detection or calculation of an extent of influence on the host vehicle (or subject vehicle) due to future changes in the surrounding environment. An agreement was reached that if the claims are amended to specify that future driving conditions are determined by calculating an extent of influence on the subject vehicle due to future changes in surrounding environment, as stated in claim 20, then the amended claims would be distinguishable from the current documents of

record and the outstanding rejections would be overcome. The Examiner cautioned that the final determination of patentability would be predicated on additional prior art search.

Per the interview agreement, this Response add new claims 21-24 are presented, which incorporate feature related to determining future driving conditions by calculating an extent of influence on the subject vehicle due to future changes in surrounding environment, into independent claims 1 and 13-15, to **achieve allowance.** It is respectfully submitted that new claims 21-24 are in condition for allowance, and indication of which is solicited.

Furthermore, Applicants respectfully submit that the outstanding rejections are overcome and the objection is addressed in view of remarks presented herein.

The Anticipation Rejection of Claims 1, 2, 4-6, 13-15 and 20 Is Overcome

Claims 1, 2, 4-6, 13-15 and 20 were rejected as being anticipated by Mattes. In order to make out a case of anticipation under 35 U.S.C. §102, the allegedly anticipating prior art must identically disclose each and every element of the claimed invention within a single prior art reference. It is respectfully submitted that the prior art identified by the Mattes fails to identically disclose each and every element of the claimed invention, and therefore the claims patentably define over the prior art.

Claim 1 describes a driving assistance system for a vehicle comprising a state recognition device that detects a vehicle condition and a traveling environment of a subject vehicle. A future state prediction device predicts future driving conditions. The driving system also comprises a risk potential calculating device that calculates risk potential around the subject vehicle based on (1) the future driving conditions predicted by the future state prediction device and (2) a driver's intentions.

On the other hand, Mattes relates to a collision avoidance method and system that calculate a collision probability based on various parameters, such as a distance or a relative speed between the own vehicle and a preceding vehicle, the azimuth angle of a preceding vehicle relative to the straight-ahead direction of the own vehicle, the lateral offset of a preceding vehicle relative to the own vehicle, and/or a speed or a steering angle of the own vehicle. Apparently, Mattes merely calculates collision probability (purportedly comparable to the risk potential described in claim 1) based on present operation information or parameters of the vehicle. However, Mattes' disclosure is **silent** on determining driver's intentions, let alone calculating the collision probability based on both (1) the future driving conditions and (2) **a driver's intentions**, as described in claim 1.

In rejecting claim 1, the Office Action the claimed limitation might have been met by Mattes' detection of vehicle acceleration because an illustrative embodiment of the instant application uses acceleration of the vehicle as an indication of a driver's intention to calculate risk potential. As discussed and acknowledged by the Examiner during the interview, even though Mattes mentions the detection of gas pedal signals for acceleration in paragraph [0023], the detection of the gas pedal signals by Mattes is to serve a very different purpose to "override" the system's operation, and **has nothing to do with calculation of a collision probability**. Therefore, Mattes' system does not **calculate the collision probability based on both (1) the future driving conditions and (2) a driver's intentions**.

Furthermore, the Examiner alleged that Mattes inherently calculates a collision probability by detecting an acceleration of the vehicle because paragraph [0032] of Mattes describes calculating a collision probability by detecting a relative speed between vehicles, and

hence any “change in speed” is “inherently” considered by Mattes system in calculating a collision probability.

However, even if “detecting a relative speed” in Mattes indeed is comparable to “detecting a change in speed,” it is respectfully submitted that the purported change in relative speed is **different** from “acceleration.” In physics, acceleration (a) is defined as “the rate of change of velocity (v) relative to time (t).” Thus, acceleration (a) is often represented as:

$$a = dv/dt$$

On the other hand, the change in relative speed as purportedly detected by Matte’s system is only a difference between two measurements of speed (dv), **NOT** a changing rate of speed or velocity relative to time (dV/dt). Therefore, even if Mattes’ system, as alleged by the Examiner, detects a change in speed and uses the difference in speed in calculating a collision probability, Mattes’ system never considers acceleration (**a changing rate of velocity or speed relative to time (dV/dt)**) in determining a collision probability. Therefore, Mattes’ system does not determine the driver’s intention, let alone determining risk potential based on both (1) the future driving conditions predicted by the future state prediction device and (2) a driver’s intentions, as described in claim 1.

Since Mattes fails to disclose every limitation of claim 1, Mattes cannot support a prima facie case of anticipation. The anticipation rejection is untenable and should be withdrawn. Favorable reconsideration of claim 1 is respectfully requested.

Like claim 1, independent claims 13-15 also include features related to predicting future driving conditions, and calculating risk potential around the subject vehicle based on both (1) the predicted future driving conditions and (2) a driver's intentions. As discussed earlier relative to claim 1, these features are unavailable in Mattes. Accordingly, claims 13-15 also are patentable

over Mattes for at least the same reasons as for claim 1. Favorable reconsideration of claims 13-15 is respectfully requested.

Claims 2, 4-6 and 16-19 depend on claims 1 and 15, respectively, and incorporate every limitation thereof. Consequently, claims 2, 4-6 and 16-19 also are patentable over Mattes by virtue of their respective dependencies, as well as based on their own merits. Favorable reconsideration of claims 2, 4-6 and 16-19 is respectfully requested.

The Obviousness Rejection Is Overcome

Claim 3 indirectly depends on claim 1 and was rejected as being unpatentable over Mattes in view of Fujita. The obviousness rejection is respectfully traversed because Mattes and Fujita cannot support a prima facie case of obviousness.

As discussed earlier, Mattes fails to disclose every limitation of claim 1, the features of which are incorporated into claim 3. Fujita was cited by the Office Action for its purported adjustment of reaction force applied to an accelerator pedal or a steering wheel to change the operation of a vehicle. However, Fujita does not alleviate the deficiencies of Mattes. Accordingly, Mattes and Fujita, even if combined, do not disclose every limitation of claim 3. Favorable reconsideration and withdrawal of the obviousness rejection of claim 3 are respectfully solicited.

The Double Patenting Rejection Is Overcome

Claims 1-7, 10, 13-15 and 20 were rejected under the obviousness type double patenting over claims 1-5 and 11-15 of US Patent No. 6,882,915, issued to Yamamura on April 19, 2005. By this Response, a terminal disclaimer in compliance with 37 CFR 1.321(b) and (c) is

submitted concurrently herewith. It is submitted that the double patenting rejection is overcome in view of the terminal disclaimer.

The Objection to Claims 8, 9, 11, 12 and 16-19 Is Addressed

Claims 8, 9, 11, 12 and 16-19, directly or indirectly, depend on claims 1 and 15, respectively, and were objected to for depending on a rejected base claim.

As discussed earlier, claims 1 and 15 are patentable over the publications of record. It is believed that claims 8, 9, 11, 12 and 16-19 are in appropriate form.

Conclusion

For the reasons given above, Applicants believe that this application is in condition for allowance, and request that the Examiner give the application favorable reconsideration and permit it to issue as a patent. If the Examiner believes that the application can be put in even better condition for allowance, the Examiner is invited to contact Applicants' representatives listed below.

Serial No.: 10/715,483

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to **Deposit Account 500417** and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP



Wei-Chen Nicholas Chen
Registration No. 56,665

600 13th Street, N.W.
Washington, DC 20005-3096
Phone: 202.756.8000 WC:al
Facsimile: 202.756.8087
Date: June 1, 2006

**Please recognize our Customer No. 20277
as our correspondence address.**